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10/646,634	08/21/2003	Michael Stuart Robbins	89205.0011	9781

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EXAMINER	
TRAN, DZUNG D	

ART UNIT	PAPER NUMBER
2638	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,634	ROBBINS ET AL.	
	Examiner	Art Unit	
	Dzung D. Tran	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15 and 17-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13, 15, 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4, 6, 12, 13, 15, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Du et al. (U.S. Patent no. 6,107,938).

Regarding claims 4 and 12, Du discloses in figure 5, an interference resistant infrared communication system, comprising..

an infrared detector 88 (col. 9, lines 57-58) for receiving an infrared optical communication signal (col. 9, line 57);

an amplifier 84 (col. 9, line 59), coupled to the infrared detector 88, for amplifying an electrical signal generated by the infrared detector 88;

a bandpass filter (e.g., infrared filter 60), coupled to the infrared detector 88, and having a center wavelength for permitting home and office infrared control system signals to substantially pass through the filter while substantially preventing interfering signals from reaching the infrared detector (col. 11, lines 19-23); and

an infrared light emitter 92 (col. 9, line 24), coupled to the amplifier 84, for emitting a signal in response to an electrical signal generated by the infrared detector 88.

Regarding claim 13, Du discloses the infrared detector 88 comprises at least one infrared photodetector (col. 9, lines 57-58).

Regarding claim 15, Du discloses the filter 60 further comprises an electromagnetic interference screen (col. 11, lines 19-23).

Regarding claim 17, Du discloses a method for communicating, comprising:

an infrared detector 88 (col. 9, lines 57-58) for detecting an infrared electromagnetic communication signal and converting the infrared electromagnetic communication signal to an electrical signal;

an amplifier 84 (col. 9, line 59) for amplifying the electrical signal;

a bandpass filter (e.g., infrared filter 60) for filtering all signals outside of a frequency band used by home and office infrared control system signals from the infrared electromagnetic communication signal prior to detecting the infrared electromagnetic communication signal (col. 11, lines 19-23);

an infrared light emitter 92 (col. 9, line 24) for emitting an infrared electromagnetic signal in response and corresponding to the electrical signal, wherein a desired infrared optical communication signal is substantially converted to an electrical signal while interfering signals are substantially prevented from being converted to an electrical signal (col. 9, lines 57-58).

Regarding claims 6 and 19, Figure 5 clearly shown the amplifier 84 for amplifying the electrical signal that is converted the infrared signal by the infrared detector 88. Thus, it is inherently that the amplifier 84 is using for increased sensitivity.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Du et al. (U.S. Patent no. 6,107,938) in view of Mc Guire (U.S. Patent no. 6,114,684).

Regarding claims 5 and 18, as per claims above, Du discloses all the limitations except for more than one photodetector is used to increase the sensitivity of the receiver to the impinging infrared light. Mc Guire discloses in figure 7, a plurality of photodiode detectors, each detector has a filter 24 for passing light within a predetermined frequency range. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the plurality photodetector taught by Mc Guire in the optical communication system of Du. One of the ordinary skill in the art would have been motivated to do this in order for the receiving unit to receive a plurality of infrared light having different frequency range. Thus, it increases the sensitivity of the receiver to the impinging infrared light.

5. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Du et al. (U.S. Patent no. 6,107,938) in view of Mc Guire (U.S. Patent no. 6,114,684) and further in view of Goto et al. (U.S. Patent no. 6,677,259).

Regarding claims 7-9, the combination of Du and Mc Guire discloses all the limitations except for the bandpass filter passes light falling within a wavelength range of about 920nm to about 980nm and the bandpass filter has an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm. Goto discloses a bandpass filter passes light within a wavelength range of about 950nm to about 1600nm (e.g., it covers wavelength range of about 950nm to about 980nm); an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm, see abstract and col. 3, line 63 to col. 4, line 5. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the bandpass filter taught by Goto in the optical communication system of Du and Mc Guire. One of the ordinary skill in the art would have been motivated to do this in order to provide an optical filter with a very high finesses to filter-out extremely narrow bandwidth wavelengths of lght energy and to reduce sensitivity to external perturbations such as noise to improve the stability of the system. Furthermore, whether or not a bandpass filter having the characteristic of an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm is merely an engineering design choices.

Regarding claim 10, Hamilton discloses the amplifier circuit having the Automatic Gain Control loop (AGC loop) feature to adjust the amplifier 29 in response to changes in received signal power (col. 3, lines 42-51). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to replace the amplifier circuit having the Automatic Gain Control loop taught by Hamilton with the amplifier of

Dworkin. One of the ordinary skill in the art would have been motivated to do this in order to increase or decrease the signal amplification in response to the received signal power so that the signal amplitude will be within some preferred range (col. 3, lines 37-40 of Hamilton).

6. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Du et al. (U.S. Patent no. 6,107,938) in view of Goto et al. (U.S. Patent no. 6,677,259).

Regarding claims 1 and 2, Du discloses in figure 5, a communication system, comprising:

an infrared detector 88 (col. 9, lines 57-58) for receiving an infrared optical communication signal (col. 9, line 57);

an amplifier 84 (col. 9, line 59), coupled to the infrared detector 88, for amplifying an electrical signal generated by the infrared detector 88;

a bandpass filter (e.g., infrared filter 60), coupled to the infrared detector 88, and having a center wavelength for permitting home and office infrared control system signals to substantially pass through the filter while substantially preventing interfering signals from reaching the infrared detector (col. 11, lines 19-23); and

an infrared light emitter 92 (col. 9, line 24), coupled to the amplifier 84, for emitting a signal in response to an electrical signal generated by the infrared detector 88.

Du differs from claims 1 and 2 of the present invention in that Du does not specifically disclose a bandpass filter is configured to have a center wavelength falling

within a range of 920nm to about 980nm; an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm; and 50 percent bandwidth of said bandpass filter encompasses the about 940nm to about 960nm wavelength range.

Goto discloses a bandpass filter passes light within a wavelength range of about 950nm to about 1600nm (e.g., it covers wavelength range of about 950nm to about 980nm); an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm, see abstract and col. 3, line 63 to col. 4, line 5. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the bandpass filter taught by Goto in the optical communication system of Du. One of the ordinary skill in the art would have been motivated to do this in order to provide an optical filter with a very high finesses to filter-out extremely narrow bandwidth wavelengths of light energy and to reduce sensitivity to external perturbations such as noise to improve the stability of the system. Furthermore, whether or not a bandpass filter having the characteristic of an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm or 50 percent bandwidth of said bandpass filter encompasses the about 940nm to about 960nm wavelength range is merely an engineering design choices.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Du et al. (U.S. Patent no. 6,107,938) in view of Goto et al. (U.S. Patent no. 6,677,259) and further in view of Solomon (U.S. Patent no. 3,725,888).

Regarding claim 3, the combination of Du and Goto discloses all the limitations except for an amplifier respond to one or more of the following signal frequencies 32KHz, 40KHz and 56KHz. Solomon discloses an amplifier respond to 40KHz frequencies (col. 2, lines 29-31). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the amplifier taught by Solomon in the optical communication system of Du and Goto. One of the ordinary skill in the art would have been motivated to do this in order to boost the signal of the broadband frequencies (i.e., about 30KHz to 70KHz) and to restore the signal to a desired level.

Response to Arguments

8. Applicant's arguments with respect to claims 1-13, 15, 17-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran
01/18/2006